Paying bills*

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Abstract

paying bills

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1. Pitch

This paper looks at whether utilities in developing countries provide an important source of credit to households by letting them not pay their bill? And how do these benefits compare to the costs of delinquency?

Motivation : (1) around the world, there are restrictions on when utilities can disconnect people (health, low-income, elderly), motivated by providing a sense of insurance; (2) Also, in developing countries, pre-paid metering where utilities essentially put fancy meters that only distribute water when people pay first. these shut off any credit channel but eliminate delinquency

Context : In Manila, water bills make up about 3% of income on average, jumps to 5 to 10% for low-income folks. I have data from a large water provider serving half the city of Manila. On average, people make a payment in three out of four months and are about a month behind in payments. For example, if you don't pay for three months, that's like taking a three-month loan of around 9% of your income.

People might be paying infrequently because they are credit-constrained and consumption smoothing; or it might just be a pain to pay their bills so they just avoid the hassle by paying infrequently (and they have plenty of other opportunities to smooth).

I use disconnection threats to better isolate the role of credit constraints. Workers will occasionally visit delinquent customers and say if you don't pay your bill soon (within 12 days on average), we'll disconnect you. Only 23% of people say that's "enough time" to pay the bill. After the threats, payments spike to double the average bill, delinquency drops to zero, and consumption drops by around 25%. If it were simply a hassle, people would pay their bill and consumption wouldn't change (they could get easy credit from other places and pay the bill); but if they are credit constrained, they have to deviate from consumption smoothing to make the payments. The next step is to use theory to see what this decrease in consumption implies about the short-term interest rate that households face.

2. Introduction

2.1. Question

Are utilities providing an important source of credit to households by letting them not pay their bill?

2.2. Motivation

- Disconnection policies as insurance (in the US)
  - weather, health, low-income
  - mandate that utilities amortize arrears
  - Utilities even tolerate greater non-payment

- At the same time, pre-paid metering is growing like crazy in the developing world (Sources)

2.3. Descriptives

- Avg Income: 22,000 PhP (488 USD) [Bill 3%]
- Avg Savings: 4,300 PhP (96 USD)
- 20% Income: 8,300 PhP (184 USD) [Bill 7.6%]
- 20% Savings: 330 PhP (7 USD)
- Avg Bill: 630 PhP (14 USD)
- Make payments 75% of months
- Avg delinquency: 30 days
- Avg Payment Amount: 830 PhP (18 USD)

But : might just be inconvenient to pay every month (but its really easy to pay bills in this context)

How can I ballpark this against the consumption smoothing literature?

2.4. Approach

Disconnection : Don't pay bill; come and threaten disconnection

- avg days to pay : 12 days (only 23% say that's enough time)
- if you (agree to?) pay, you are reconnected after 2 days
- 30% of connections are threatened with disconnection
- (small percent actually disconnect)
- Pay (+1) 800 PhP (+2) 300 PhP = total 1100 PhP (24 USD) [about two water bills on average]
- Consumption drops by about 20% for two months (there is a pre-trend which can be interpreted as positive demand shocks)

Theory :

- suddenly this source of credit is cut off (loan with uncertain payback date)
- concave utility predicts that households would want to smooth consumption (could get another loan, then fund consumption in that period)
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Table 1. Estimates

	Estimate	Standard Error
Interest Rate	0.046	0.00
Income Variance	0.300	0.00
Water Preference	0.020	0.00

Table 2. Fit

	Data	Estimated
Mean Usage (m3)	24.9	25.5
Std. Dev. Usage	11.1	2.2
Mean Water Debt (PhP)	1232	1222
Std. Dev. Water Debt (PhP)	1281	1821
Corr. Usage and Water Debt	0.34	-0.01
Mean Usage Pre-Collect (m3)	26.2	25.2
Mean Usage Post-Collect	23.4	22.7
Diff. (Pre-Post) (m3)	2.8	2.5

3. Interest rate

Karlan and Zinman [2009] find money lenders regularly charge at least 20% per month for credit. Giné and Karlan [2014] offer small monthly loans of 1,000 PhP at 2.5% monthly interest.

Andreoni and Sprenger [2012] estimate rates between 25% and 35% in an experimental setting and confirm exponential discounting. Laibson et al. [2007] use a similar consumption-savings structural approach and recover a discount rate of around 15%. Gourinchas and Parker [2002] use a similar structural approach finding a lower discount rate of around 5%.

4. Results

References

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